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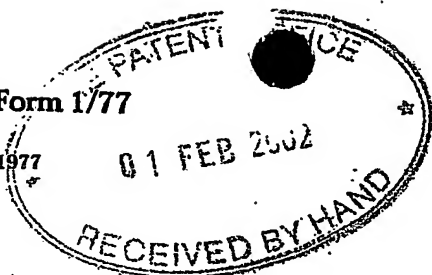
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Patents Form 1/77

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04FEB02 E692062-7 002890
P01/7700 0.00-0202423.0

1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference

RSJ06901GB

2. " "

0202423.0

1 FEB 2002

3. Full name, address and postcode of the or of each applicant (*underline all surnames*) ...

De La Rue International Limited
De-La-Rue House, Jays Close
Viables, Basingstoke
Hampshire, RG22 4BS
GREAT BRITAIN

Patents ADP number (*if you know it*)

If the applicant is a corporate body, give the country/state of its incorporation

Great Britain 7563612001

4. Title of the invention

CURRENCY BILL HANDLING

5. Name of your agent (*if you have one*)

Gill Jennings & Every

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

Broadgate House
7 Eldon Street
London
EC2M 7LH

Patents ADP number (*if you know it*)

745002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country

Priority application number
(*if you know it*)

Date of filing
(*day / month / year*)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(*day / month / year*)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*Answer 'Yes' if:*

YES

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

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Continuation sheets of this form

Description 6

Claim(s) 2

Abstract

Drawing(s) 3



10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents
(please specify)

NO

11. For the applicant
Gill Jennings & Every

I/We request the grant of a patent on the basis of this application.

Signature



Date

01/02/02

12. Name and daytime telephone number of person to contact in the United Kingdom

SKONE JAMES, Robert Edmund
020 7377 1377

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CURRENCY BILL HANDLING

The invention relates to the handling of currency bills.

5 Currently, cash for dispensing machines is handled within physically secure areas e.g. at the sourcing bank when cash is being loaded into cassettes, during transport in secure vans and then in the ATM itself when the cassette is positioned in the dispenser which itself sits within a
10 secure cabinet or safe. The concentration is on protecting the cash by controlling it within an environment that is physically secure. This system of cash handling has evolved partly because of the lack of inherent security in the cassette itself. If stolen, it is possible to recover
15 the cash from a cassette once removed to a convenient location, by simply smashing it open.

 There is a need to simplify the handling of currency bills in view of the increasing use of dispensing machines and also a need to locate dispensing machines in more
20 convenient areas rather than banks and other secure locations.

 In accordance with one aspect of the present invention, a method of providing currency bills for dispensing comprises providing currency bills in a store
25 having a bill degradation system which is activated to degrade bills in the store if an unauthorised attempt is made to gain access to the interior of the store; and mounting the store in or on a bill dispenser, the dispenser being located in an area in which the store is not
30 protected against access by unauthorised personnel.

 We have realised that it is possible to avoid the need to locate a bill dispenser in a highly secure environment if steps are taken to prevent unauthorised access to the bills in the store. This is achieved by incorporating a
35 bill degradation system in the store. Bill or bank note degradation systems, such as a dye spray, are known primarily for use in manually carried cases and the like

and which respond to a trigger to degrade the banknotes, for example by applying a dye to the banknotes, to a condition that renders them valueless to an unauthorised person. (See WO-A-98/03758).

5 Typically, the bill dispenser is located in an area in which there is open access to members of the public. The dispenser may include a lock to prevent the opportunist from stealing the store while the store itself may simply comprise a material suitable only for confinement of bills.

10 In theory, the banknotes still have a value to an authorised handler, because they can be returned to the issuing bank for replacement, upon presenting evidence of ownership. An unauthorised person would not have this evidence and the cash exchange would be refused, also
15 alerting the bank or police to the theft. The notes are degraded to the point where any member of the public thinking of accepting them would refuse them on the basis that they are too defaced to use.

20 It will be appreciated that with this invention, it is no longer necessary to locate the bill dispenser in a secure location thus reducing the costs of siting bill dispensers. At the same time it enables bill dispensers to be located in areas such as shops and other retail outlets and in temporary locations such as within a shopping mall,
25 say once per week on a particular day or time, at a venue where the general public are congregating, e.g. for a football match, concert etc., or in any circumstances where cash might be required by a number of people when other, permanent, machines might not be available.

30 In some cases, for reasons of aesthetics, the bill dispenser may be surrounded by a non-secure cabinet such as a plastics cabinet and could, for example, be mounted within an item of furniture appropriate to the location concerned.

35 Conveniently, the method further comprises conveying the store to the bill dispenser in a non-secure or low security manner. By relying on the bill degradation system

to provide security, it is possible to relax the security requirements for transporting stores of currency bills so that they could be transported on non-secure vehicles and the like and then inserted into a bill dispenser.

5 So far the invention has been described in connection with currency bill dispensing. However, the invention is applicable to currency bill handlers more generally including bill dispensers, bill acceptors and bill recyclers. Thus, in accordance with a second aspect of the
10 present invention, a currency bill handling machine ~~comprises a non-secure or low security housing containing~~ a bill transport for conveying bills in one or both directions between a bill store and an opening, and a bill degradation system which is responsive to an unauthorised
15 attempt to gain access to the interior of the machine to degrade bills in the machine.

 The bill degradation system could be located so as to degrade bills in one or more positions within the machine but is preferably located in the area or areas which
20 contain the bulk of the bills within the machine. For example, the store may comprise a tray on which bills are stacked, the bill degradation system being adapted to degrade bills on the tray. This is preferable since, in the case of dye degradation, the degradation can be better
25 targeted leaving other areas of the machine "clean".

 An advantage of this aspect of the invention is that the bill degradation system forms part of the machine rather than the store as in the first aspect of the invention, thus reducing the cost of the store.

30 In both aspects, triggering of the bill degradation system can be achieved in a variety of ways. For example, the bill degradation system itself may comprise one or more sensors for detecting unauthorised access. Alternatively, one or more sensors for detecting unauthorised access may
35 be provided within the machine separately from the bill degradation system, a controller also being provided which

is responsive to the sensors to activate the bill degradation system.

The reduction in security requirements which is achieved with the invention would also enable a much lighter mechanism to be constructed since there is no need for a heavy safe to protect the currency, thus allowing the machine to be portable and the possibility of including self-powering with, for example, a battery.

In addition, communication with a remote host could be achieved in all examples using a suitable communication system such as a mobile phone or "Bluetooth" short-range radio communication.

Some examples of methods according to the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a schematic, perspective view of one example of a bill dispenser mounting;

Figure 2 is a side view of a second example of a bill dispenser mounting;

Figure 3 illustrates the construction of a cassette; and,

Figure 4 illustrates a bill recycler.

In Figure 1 a bill dispenser (not shown) of conventional form is located within a housing such as a shop counter formed of plastics or other relatively insecure material. A typical example of a bill dispenser is the De La Rue 1700 Single Denomination Dispenser machine. A banknote cassette is inserted into the dispenser through an opening 2 in the side of the housing 1 while a keypad, card reader and display 3 coupled with the dispenser are mounted in the upper surface of the housing 1. Banknotes are dispensed through an exit opening 4.

A cassette will be loaded with banknotes in a secure location such as a bank vault and then transported, typically using a non-secure vehicle and personnel, to the bill dispenser where it will be located in the opening 2.

The housing 1 is insecure in the sense that it is relatively easy to gain access to the bill dispenser through the housing 1. However, any unauthorized attempt to gain access to the interior of the cassette will result in a banknote degradation system being activated and the banknotes being rendered useless. This will be described in more detail with reference to Figure 3 below.

Figure 2 illustrates an alternative bill dispenser configuration where again the bill dispenser itself is a relatively conventional form, in this case being mounted within a non-secure housing 10 such as plastics or thin metal sheet, the housing 10 being supported on wheels 11 so that the dispenser can be moved easily between locations. The location of the dispenser is shown at 12 while a cassette will be located in the dispenser through an opening 13. As before, a display 14, keypad 15, card reader 16 and dispense opening 17 are provided.

The cassette could hold more than one denomination and preferably includes a reject region into which banknotes which are found not to be dispensable (typically doubles or other misfeeds) can be returned and held securely. The bill degradation system will, of course, degrade the rejected bills as well as the non-dispensed bills.

Figure 3 illustrates an example of a cassette for use in the examples of Figures 1 and 2. The cassette comprises a housing 20 having a retractable shutter 21 which can be secured in the closed position shown, by a lock 22. The cassette has a platform 23 on which a stack of banknotes 24 is located. The stack 24 is urged towards the shutter 21 by a pressure plate 25 and a tension spring 26. A degradation system 30 is mounted within the cassette and includes a distribution channel 31 having a sequence of apertures 32 in communication with a body 33 containing a rupturable membrane 34 storing a dye, a source of compressed gas 35 and an explosive 36. The explosive 36 is connected to a sensor 37 mounted to the cassette 20 for detecting unauthorised access. The sensor could be some

form of seismic detector sensitive to vibrations exceeding a threshold, for example due to a sledgehammer attack or the like, or could be triggered remotely from a host system responsive to other sensors within the machine.

5 If the sensor 37 detects an unauthorised attempt to gain access to the cassette 20, it will cause a trigger signal to be supplied to the explosive 36 which will explode, causing the container 35 to rupture and thus the gas will expand into the body 33 pressurizing the flexible
10 membrane 34 which will also rupture so delivering dye into the channel 31. The dye will then exit through the apertures 32 and irreversibly dye the banknotes in the stack 24.

Figure 4 illustrates a bill recycler based on the De
15 La Rue Twin Safe machine. This includes a bill input aperture 40 and an output aperture 41, bills supplied to the input aperture 40 being conveyed along a transport route 42 past various sensors 43 to a diverter 44. Accepted bills are fed down into a container 45 (which is
20 conventionally a safe but in this example is an insecure container) where they are fed to a respective roll storage module 46 under the control of a controller 49. Each roll storage module 46 includes a dye degradation system 47 similar to that shown in Figure 3. A sensor 48 is mounted
25 on the inside of the container 45 to detect attempts to achieve unauthorised access, the sensor 48 being connected to the controller 49 which, if such an attempt is detected, activates the dye degradation system 47.

The controller 49 is also connected to a communication
30 device 50 enabling information from the bill recycler to be transmitted by wireless means to a host 51 which may be situated locally or remotely. Signals can also be transmitted from the host to the controller 49.

CLAIMS

1. A method of providing currency bills for dispensing, the method comprising providing currency bills in a store
5 having a bill degradation system which is activated to degrade bills in the store if an unauthorised attempt is made to gain access to the interior of the store; and mounting the store in or on a bill dispenser, the dispenser being located in an area in which the store is not
10 protected against access by unauthorised personnel.
- ~~2. A method according to claim 1, wherein the bill dispenser is surrounded by a non-secure cabinet.~~
3. A method according to claim 2, wherein the non-secure cabinet is made of plastics or thin sheet metal.
- 15 4. A method according to any of the preceding claims, wherein the store is adapted to receive bills rejected as non-dispensable by the bill dispenser.
5. A method according to any of the preceding claims, wherein the store is conveyed to the bill dispenser in a
20 non-secure manner.
6. A method according to any of the preceding claims, wherein the bill degradation system applies a dye to the bills when activated.
7. A method of providing currency bills for dispensing
25 substantially as hereinbefore described with reference to the accompanying drawings.
8. A currency bill handling machine comprising a non-secure or low security housing containing a bill transport for conveying bills in one or both directions between a
30 bill store and an opening, and a bill degradation system which is responsive to an unauthorised attempt to gain access to the interior of the machine to degrade bills in the machine.
9. A machine according to claim 8, wherein the store
35 comprises a tray on which bills are stacked, the bill degradation system being adapted to degrade bills on the tray.

10. A machine according to claim 8 or claim 9, wherein the bill degradation system comprises one or more sensors for detecting unauthorized access.

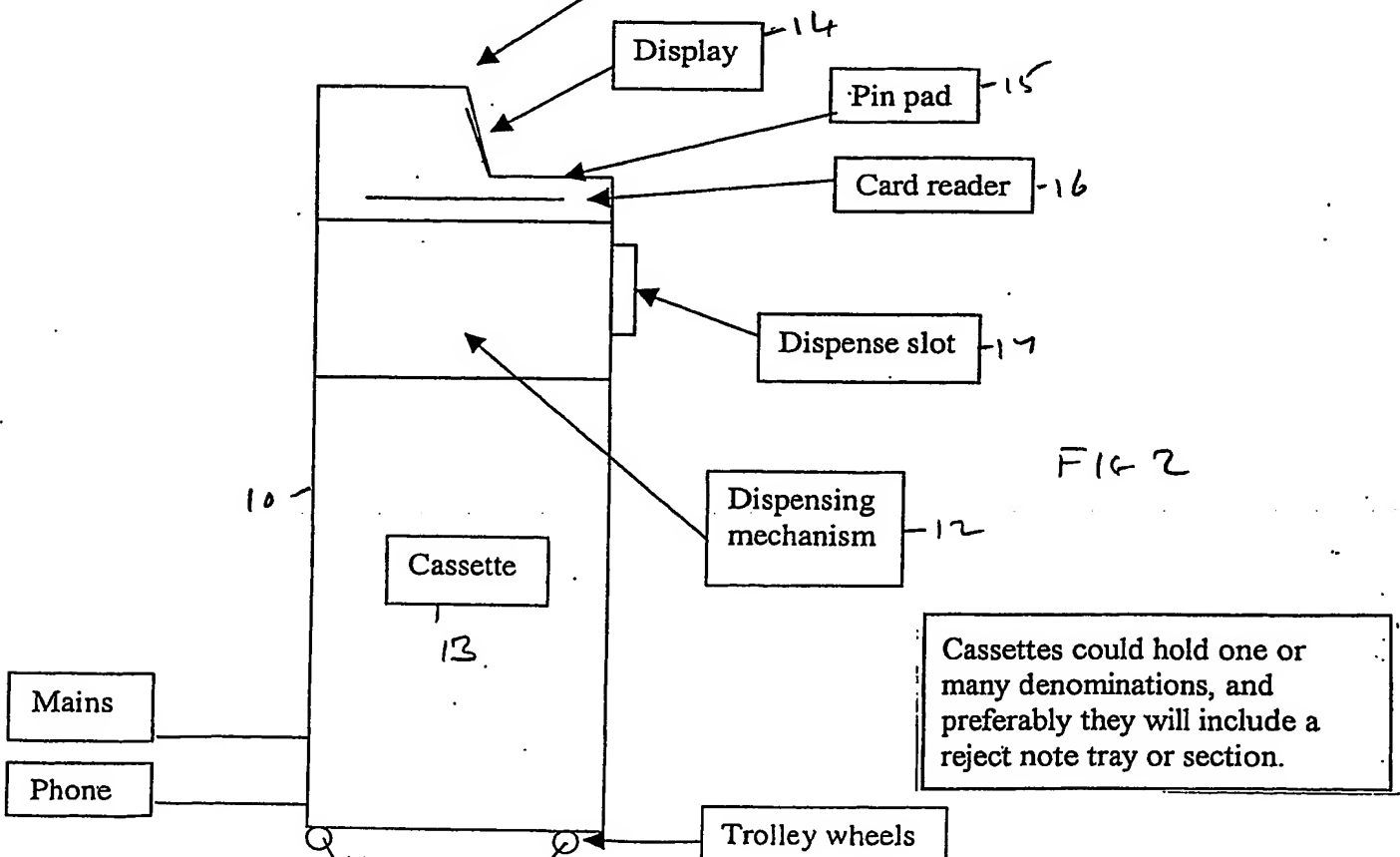
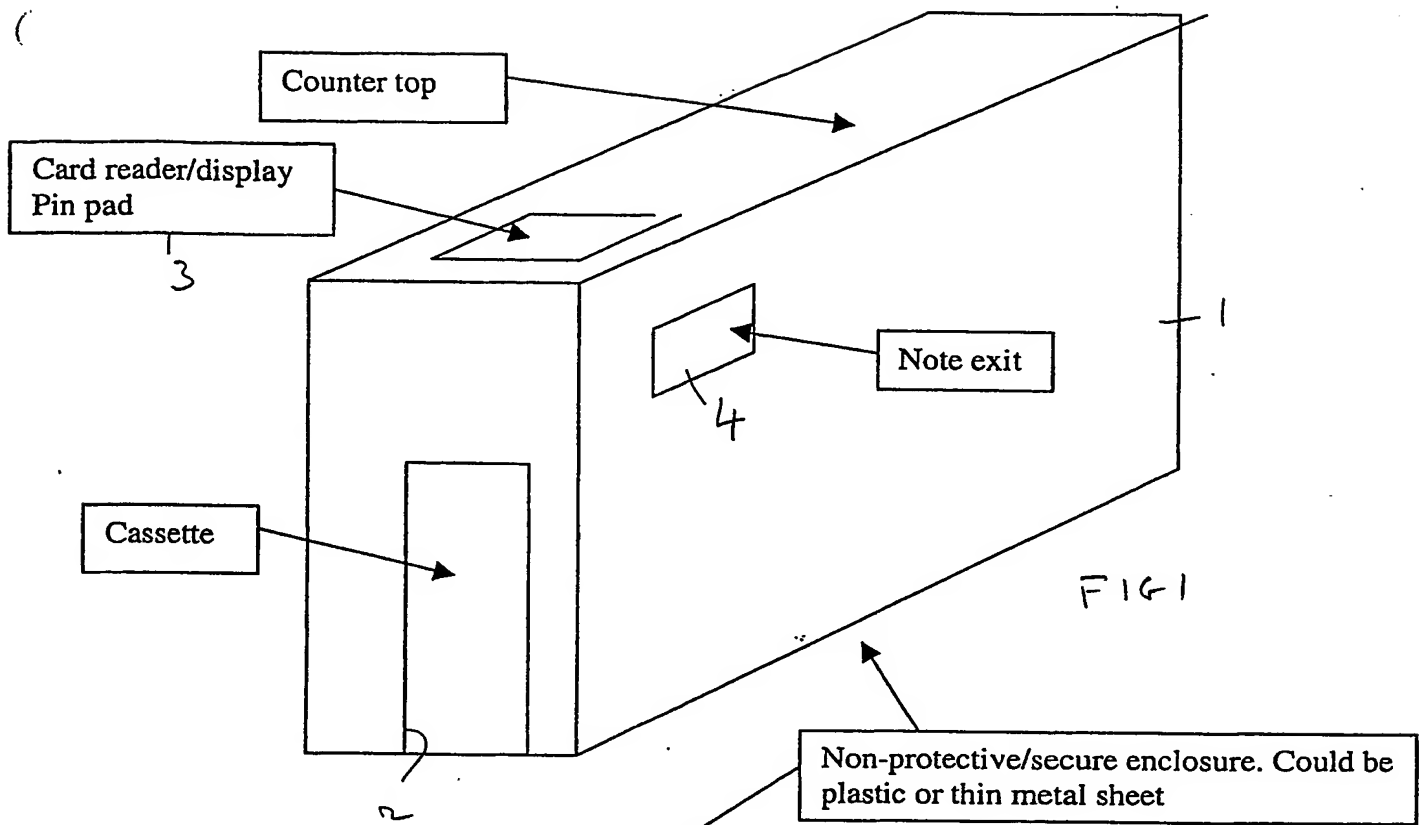
5 11. A machine according to claim 8 or claim 9, further comprising one or more sensors for detecting unauthorized access; and a controller responsive to the sensors to activate the bill degradation system.

12. A machine according to any of claims 8 to 11, wherein the machine is self-powered.

10 13. A machine according to any of claims 8 to 12, further including a communication system for communicating with a remote host.

14. A machine according to any of claims 8 to 13, wherein the bill degradation system applies a dye to the bills when
15 activated.

15. A machine according to any of claims 8 to 14, the machine comprising one of a bill dispenser, acceptor or recycler.



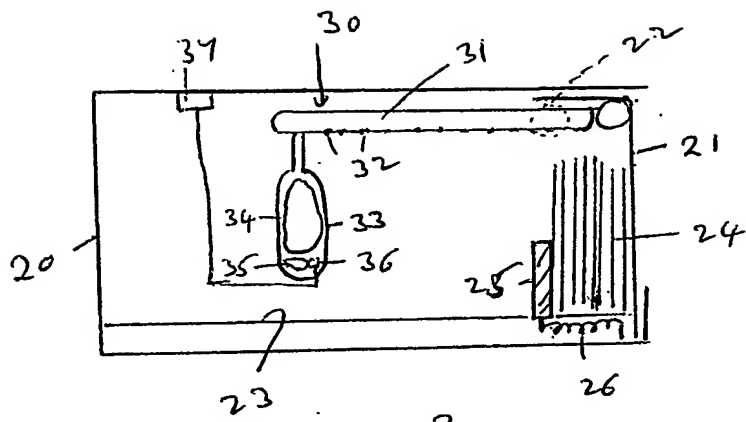


FIG 3

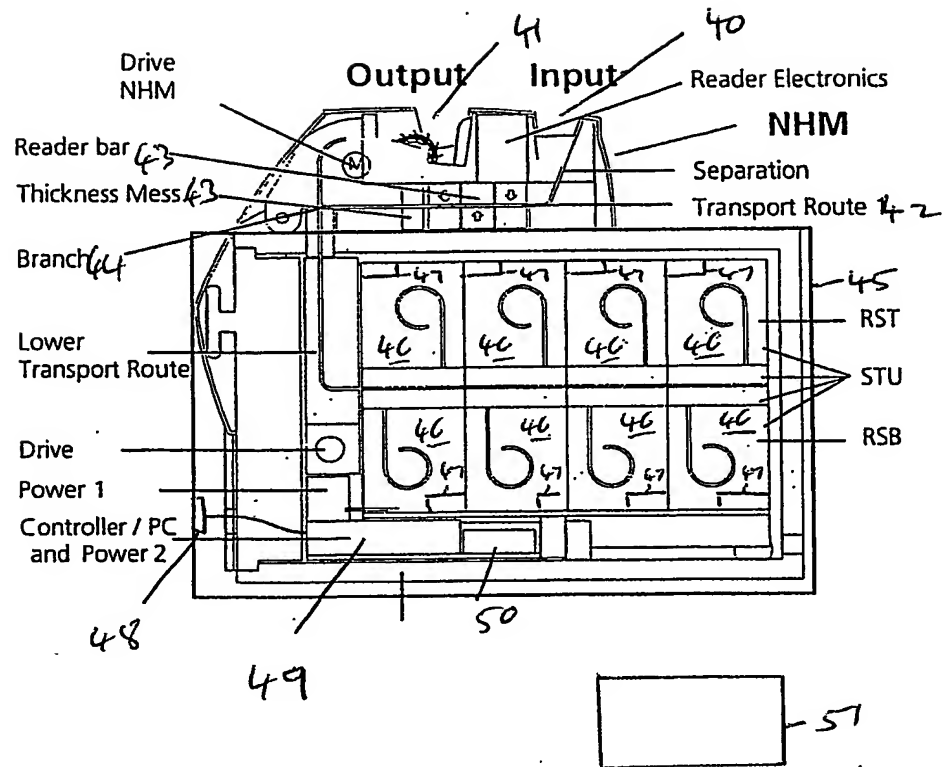


FIG 4